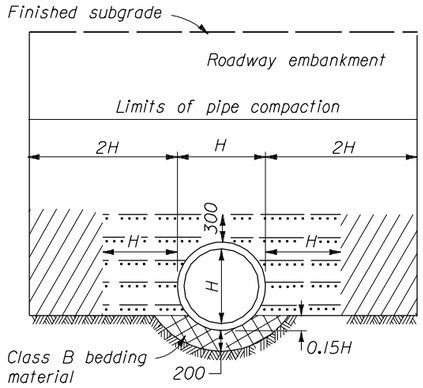
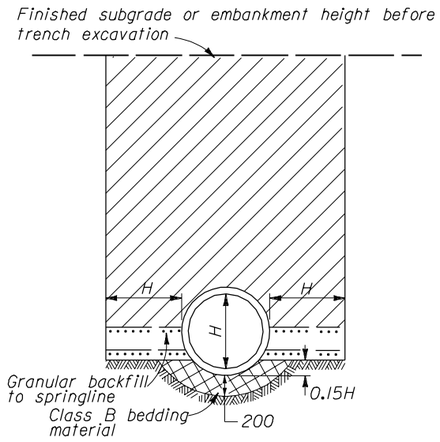
| REG | STATE | PROJECT | SHEET NO. |
|---|---|---|---|
| | | | |

## CONCRETE ROUND PIPE CULVERT
### FILL HEIGHT AND PIPE CLASS TABLE

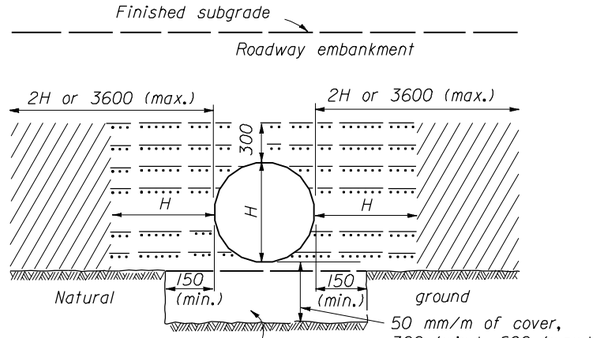
| PIPE SIZE DIAMETER | MINIMUM COVER | EMBANKMENT | | | | TRENCH | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | CLASS II | CLASS III | CLASS IV | CLASS V | CLASS II | CLASS III | CLASS IV | CLASS V |
| | | MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE IN METERS | | | | | | | |
| 300 | 300 | 3 | 3.0 | 4.5 | 7.0 | 5.5 | 5.5 | 8.0 | 4.0 |
| 450 | 300 | 3 | 3.0 | 7.5 | 12.0 | 4.0 | 4.0 | 9.0 | 13.5 |
| 600 | 300 | 3 | 3.0 | 4.5 | 9.0 | 4.5 | 4.5 | 6.5 | 12.0 |
| 750 | 300 | 2.5 | 4.0 | 4.5 | 10.5 | 4.0 | 5.0 | 6.0 | 14.0 |
| 900 | 300 | 2.5 | 2.5 | 6.0 | 12.5 | 3.0 | 4.0 | 8.0 | 17.0 |
| 1200 | 300 | 3.5 | 4.0 | 8.0 | 13.5 | 4.5 | 5.0 | 9.0 | 15.0 |
| 1500 | 300 | 4.5 | 5.0 | 8.5 | 13.5 | 4.5 | 6.0 | 9.5 | 15.0 |
| 1800 | 300 | 4.0 | 5.0 | 9.0 | 12.5 | 4.5 | 6.0 | 10.5 | 15.0 |
| 2100 | 300 | 4.0 | 5.5 | 9.0 | | 4.5 | 7.0 | 11.0 | |
| 2400 | 300 | 4.0 | 6.0 | | | 4.5 | 7.0 | | |
| 2700 | 350 | 4.5 | 6.0 | | | 5.5 | 8.0 | | |



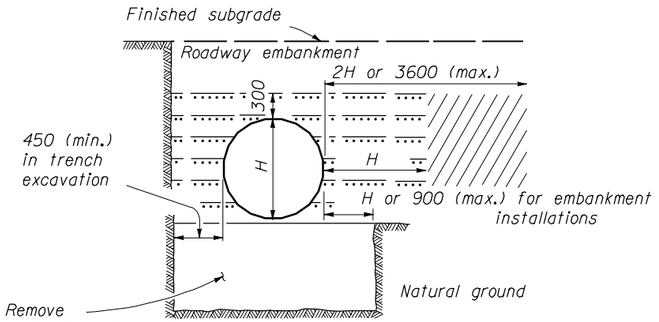

EMBANKMENT INSTALLATION



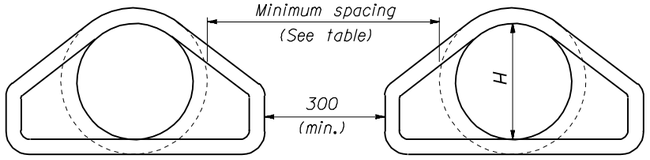

TRENCH INSTALLATION




ON UNYIELDING MATERIAL




ON UNSTABLE MATERIAL

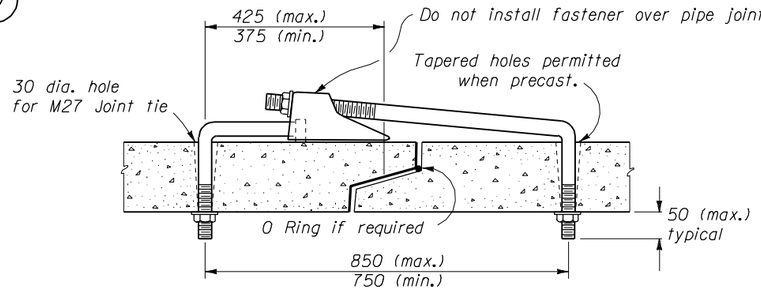



| MINIMUM SPACING | | |
|---|---|---|
| DIAMETER | EMBANKMENT | TRENCH |
| 300-900 | 380 | 2H |
| 900-2400 | 0.5H | 1830 |
| OVER 2400 | 1220 | 1830 |

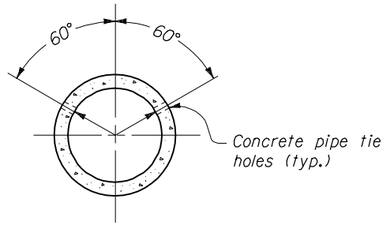
MULTIPLE ROUND PIPE INSTALLATION

**LEGEND:**

- Bedding material
- Embankment material placed in layers not exceeding 150 mm compacted depth.
- Approved granular material or fine compactable soil placed in layers not exceeding 150 mm compacted depth.



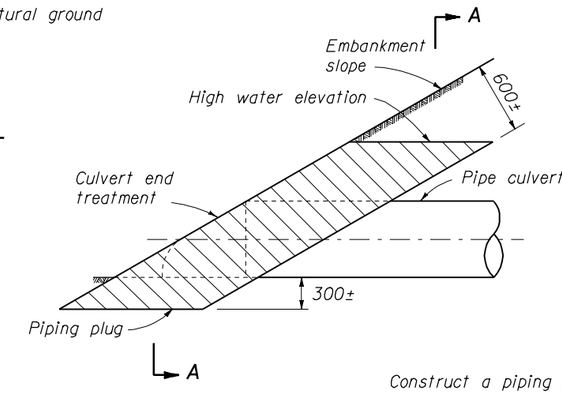

SUPPLEMENTAL CONCRETE PIPE TIE

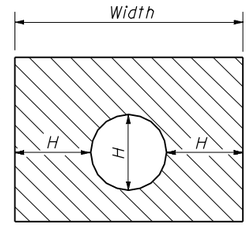



NO SCALE

### NOTES:

1. Unless otherwise shown, dimensions are in millimeters.
2. When directed, camber pipe culverts upward from a chord through the inlet and outlet inverts an ordinate amount equal to 1% of the pipe length. Develop camber on a parabolic curve. If the midpoint elevation on the parabolic curve as designed exceeds the elevation of the inlet invert, reduce the amount of camber or increase the pipe culvert gradient
3. Measure minimum cover from the top of the pipe culvert to the subgrade for flexible pavements, and to the top of the pavement for rigid pavements. Measure maximum fill height from the top of the pipe to the top of the pavement for both flexible and rigid pavements.
4. Pipe compaction limits shown are for pipe installation in an embankment. For pipe installation in a trench, the compaction limits shall be the walls of the trench.
5. Where grades exceed 10% install supplemental concrete pipe ties on pipe culvert or install bell and spigot pipe.
6. Maximum fill heights for pipe culvert installations may be increased on approval of site-specific structural pipe designs meeting the criteria of AASHTO Standard Specifications for Highway Bridges.




SECTION A-A

Construct a piping plug of impermeable backfill material at the pipe inlet where granular material is used for backfill. Width may be adjusted to tie into impervious material.

PIPING PLUG

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

METRIC DETAIL

# CONCRETE PIPE CULVERT INSTALLATION

DETAIL APPROVED FOR USE --/----

REVISED: 4/29/02

DETAIL EM602-7

02/27/2003 07:58:52 AM M:\Standard\METRIC\EM60207.dgn